ROLL NO: 210701268

EXP 4: Create UDF in PIG

Step-by-step installation of Apache Pig on Hadoop cluster on Ubuntu Pre-requisite:

· Ubuntu 16.04 or higher version running (I have installed Ubuntu on Oracle VM (Virtual Machine) VirtualBox),

· Run Hadoop on ubuntu (I have installed Hadoop 3.2.1 on Ubuntu 16.04). You may refer to my blog "How to install Hadoop installation" click here for Hadoop installation).

Pig installation steps

Step 1: Login into Ubuntu

Step 2: Go to https://pig.apache.org/releases.html and copy the path of the latest version of pig that you want to install. Run the following comment to download Apache Pig in Ubuntu:

$ wget https://dlcdn.apache.org/pig/pig-0.16.0/pig-0.16.0.tar.gz

Step 3: To untar pig-0.16.0.tar.gz file run the following command:

$ tar xvzf pig-0.16.0.tar.gz

Step 4: To create a pig folder and move pig-0.16.0 to the pig folder, execute the following command:

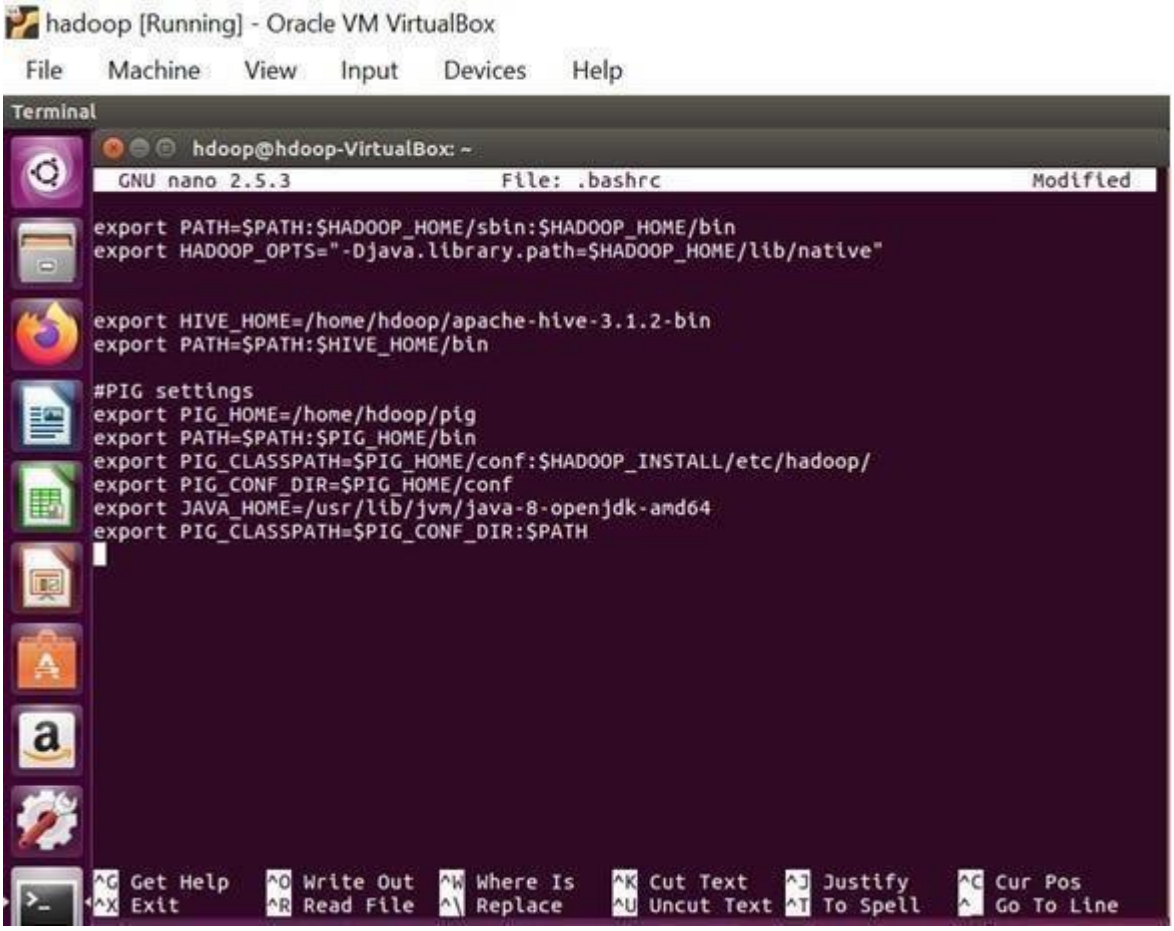
$ sudo mv /home/hdoop/pig-0.16.0 /home/hdoop/pig

Step 5: Now open the .bashrc file to edit the path and variables/settings for pig. Run the following command:

$ sudo nano .bashrc

Add the below given to .bashrc file at the end and save the file.

#PIG settingsexport PIG_HOME=/home/hdoop/pigexport PATH=$PATH:$PIG_HOME/binexport PIG_CLASSPATH=$PIG_HOME/conf:$HADOOP_INSTALL/etc/hadoop/export PIG_CONF_DIR=$PIG_HOME/confexport JAVA_HOME=/usr/lib/jvm/java-8openjdkamd64export PIG_CLASSPATH=$PIG_CONF_DIR:$PATH#PIG setting ends



Step 6: Run the following command to make the changes effective in the .bashrc file:

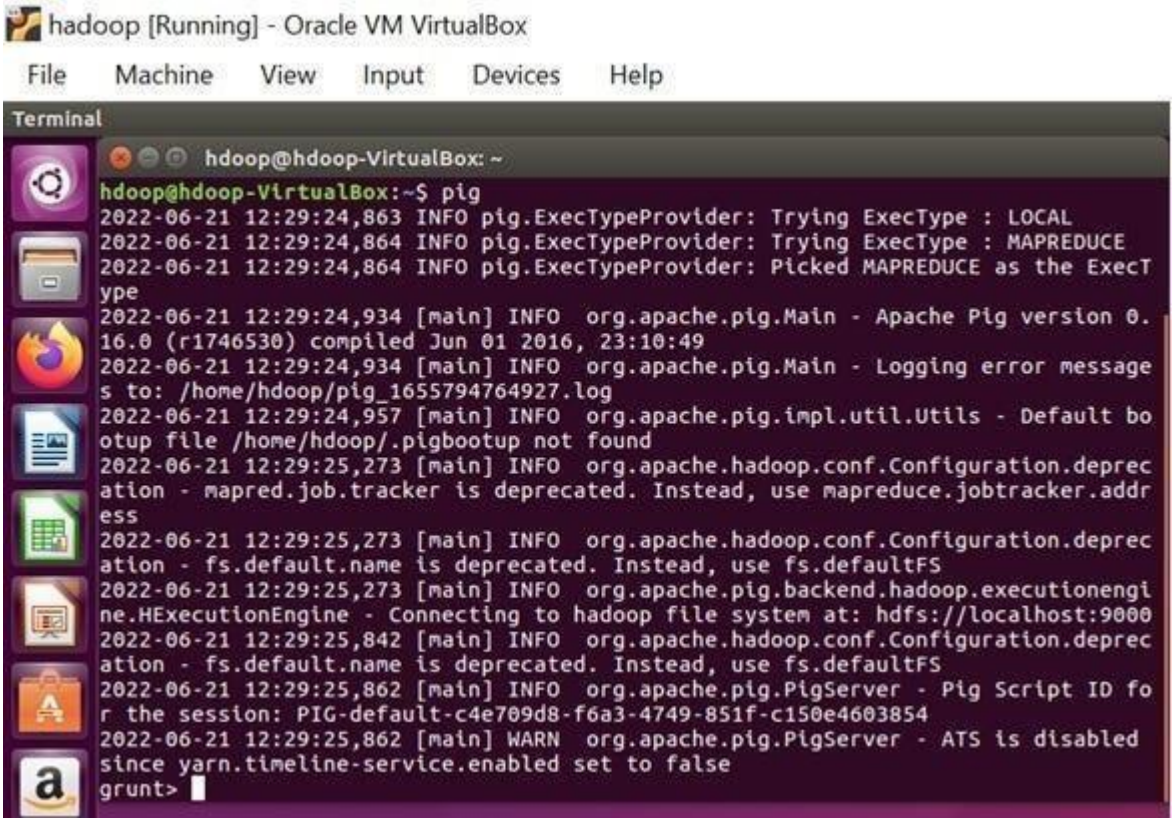
$ source .bashrc

Step 7: To start all Hadoop daemons, navigate to the hadoop-3.2.1/sbin folder and run the following commands:

$ ./start-dfs.sh$ ./start-yarn$ jps

Step 8: Now you can launch pig by executing the following command: $

pig



Step 9: Now you are in pig and can perform your desired tasks on pig. You can come out of the pig by the quit command:

> quit;

CREATE USER DEFINED FUNCTION(UDF)

Aim : To create User Define Function in Apache Pig and execute it on map reduce.

Procedure:

Create a sample text file

hadoop@Ubuntu:~/Documents$ nano sample.txt

Paste the below content to sample.txt

1,John

2,Jane

3,Joe

4,Emma

hadoop@Ubuntu:~/Documents$ hadoop fs -put sample.txt /home/hadoop/piginput/

Create PIG File hadoop@Ubuntu:~/Documents$

nano demo_pig.pig

paste the below the content to demo_pig.pig

-- Load the data from HDFS data = LOAD '/home/hadoop/piginput/sample.txt'

USING PigStorage(',') AS (id:int>

-- Dump the data to check if it was loaded correctly

DUMP data;

---------- **Run**

the above file hadoop@Ubuntu:~/Documents$ pig demo_pig.pig

2024-08-07 12:13:08,791 [main] INFO org.apache.pig.backend.hadoop.executionengine.util.MapRedUtil

- Total input paths to process : 1

(1,John)

(2,Jane)

(3,Joe)

(4,Emma)

Create udf file an save as uppercase_udf.py

uppercase_udf.py

---------- def

uppercase(text): return text.upper()

if __name__ == "__main__":

import sys for line in

sys.stdin:

```
line = line.strip() result
= uppercase(line)
print(result)
```

---------- **Create the udfs folder on hadoop hadoop@Ubuntu:~/Documents$ hadoop fs -mkdir /home/hadoop/udfs**

put the upppercase_udf.py in to the abv folder hadoop@Ubuntu:~/Documents$ hdfs dfs -put uppercase_udf.py /home/hadoop/udfs/

---

hadoop@Ubuntu:~/Documents$ nano udf_example.pig copy and paste the below content on udf_example.pig

```
-- Register the Python UDF script
REGISTER 'hdfs:///home/hadoop/udfs/uppercase_udf.py' USING jython AS udf;

-- Load some data data = LOAD 'hdfs:///home/hadoop/sample.txt'
AS (text:chararray);

-- Use the Python UDF uppercased_data = FOREACH data GENERATE
udf.uppercase(text) AS uppercase_text;

-- Store the result
STORE uppercased_data INTO 'hdfs:///home/hadoop/pig_output_data';
```

---

place sample.txt file on hadoop hadoop@Ubuntu:~/Documents$ hadoop fs -put sample.txt /home/hadoop/

To Run the pig file hadoop@Ubuntu:~/Documents$

pig -f udf_example.pig **finally u get Success!**

Job Stats (time in seconds):

JobId Maps Reduces MaxMapTimeMinMapTime AvgMapTime MedianMapTime

MaxReduceTime MinReduceTime AvgReduceTime MedianReducetime Alias

Feature Outputs

job_local1786848041_0001 1 0 n/a n/a n/a n/a 00 0 0 data,uppercased_data

MAP_ONLY hdfs:///home/hadoop/pig_output_data,

Input(s):

Successfully read 4 records (42778068 bytes) from: "hdfs:///home/hadoop/sample.txt"
Output(s):

Successfully stored 4 records (42777870 bytes) in: "hdfs:///home/hadoop/pig_output_data"

Counters:

Total records written : 4

Total bytes written : 42777870

Spillable Memory Manager spill count : 0

Total bags proactively spilled: 0

Total records proactively spilled: 0

Job DAG:

job_local1786848041_0001

2024-08-07 13:33:04,631 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2024-08-07 13:33:04,639 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized!

2024-08-07 13:33:04,644 [main] WARN org.apache.hadoop.metrics2.impl.MetricsSystemImpl - JobTracker metrics system already initialized! 2024-08-07 13:33:04,667 [main] INFO

org.apache.pig.backend.hadoop.executionengine.mapReduceLayer.MapReduceLauncher - Success!

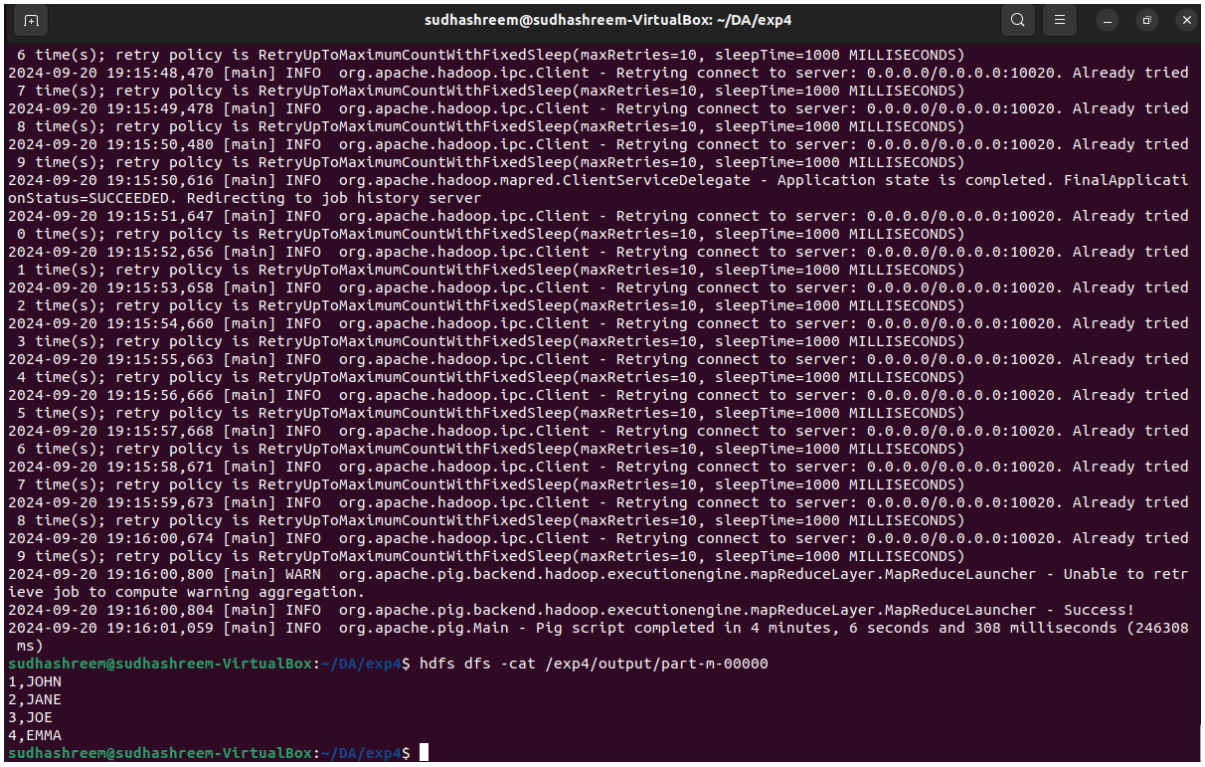
Note :

If any error check jython package is installed and check the path specified on the above steps are give correctly

---------- **To check the output file is created** hadoop@Ubuntu:~/Documents$ hdfs dfs -ls /home/hadoop/pig_output_data

Found 2 items

If you need to examine the files in the output folder, use: **To view the output hadoop@Ubuntu:~/Documents$ pig demo_pig.pig**



Result:

Thus the program is executed successfully